

## 2.0 D&RG Corridor Reevaluation

For the initial screening in the Final EIS, a planning-level approach was used that assumed a four-lane freeway within a 100-m (328-ft) development corridor. Costs were based on a 100-m right-of-way width and generalized bridge requirements (see page 2-26 of the Final EIS). To ensure that all relevant information is provided, the cost estimates for all five regional corridors discussed in the Final EIS have been updated and are provided in Table 2-1.

**Table 2-1. Regional Corridor Cost Estimates**

Regional Corridor	2004 Cost Estimate (millions) <sup>a</sup>
Great Salt Lake	\$439
Denver & Rio Grande	\$589
Farmington Bay	\$830
Antelope Island	\$1,525
Union Pacific	\$1,702
Trans-Bay	\$1,868

The cost estimate as of the contract date for the Legacy Parkway (January 2001) was \$451 million.

<sup>a</sup> Includes quantity estimates, wetland mitigation, displacements and relocations, and ROW. Excludes contractor pre-award engineering, incentives, and stipends.

The increase in the regional alignment cost estimates can be attributed primarily to inflation between 2000 and 2004, refining the cost-estimating assumptions, and applying a consistent cost-estimating methodology to all regional alignments. More detailed information on updated regional cost estimates and a comparison between the estimated cost of Great Salt Lake and D&RG regional corridors is provided in Attachment 1 (Section 3.3 and Appendix A).

Cost estimates were also developed for conceptual alignments within the D&RG regional corridor and for Alternative E, which was used to represent an alignment with the Great Salt Lake corridor. See Section 3.3, D&RG Alignment-Specific Costs, which follows the description of the conceptual alignments, and Attachment 1 (Section 6.1 and Appendix C) for more detailed information.

To re-evaluate the impacts that could be expected from a highway in the D&RG regional corridor and to ensure that a reasonable range of feasible alternatives was considered, conceptual highway alignments were developed in the corridor. Section 2.1, Conceptual Alignments, and Section 2.2, D&RG Alternatives Development and Assumptions, describe the rationale and assumptions for creating the conceptual alignments for the D&RG corridor which are described in Section 2.3, Description of D&RG Conceptual Alignments.

## 2.1 Conceptual Alignments

In the Final EIS, UDOT used a corridor approach, based in large part on the work done for the MIS, to estimate costs and impacts at a planning level to eliminate corridors that were so costly that they are unreasonable under NEPA.

For the Supplemental EIS, the lead agencies reviewed updated information on the D&RG regional corridor, as well as on alternative conceptual alignments placed within the D&RG regional corridor. This review included evaluation of the D&RG conceptual alignments based on various alternative ROW widths. It also included development of detailed information to document the impacts to wetlands and to existing development. Section 3.3, D&RG Alignment Specific Costs, presents refined cost information based on the right-of-way necessary for the D&RG conceptual alignments. Section 3.0, D&RG Conceptual Alignments Evaluation, presents detailed impact information relative to D&RG conceptual alignments.

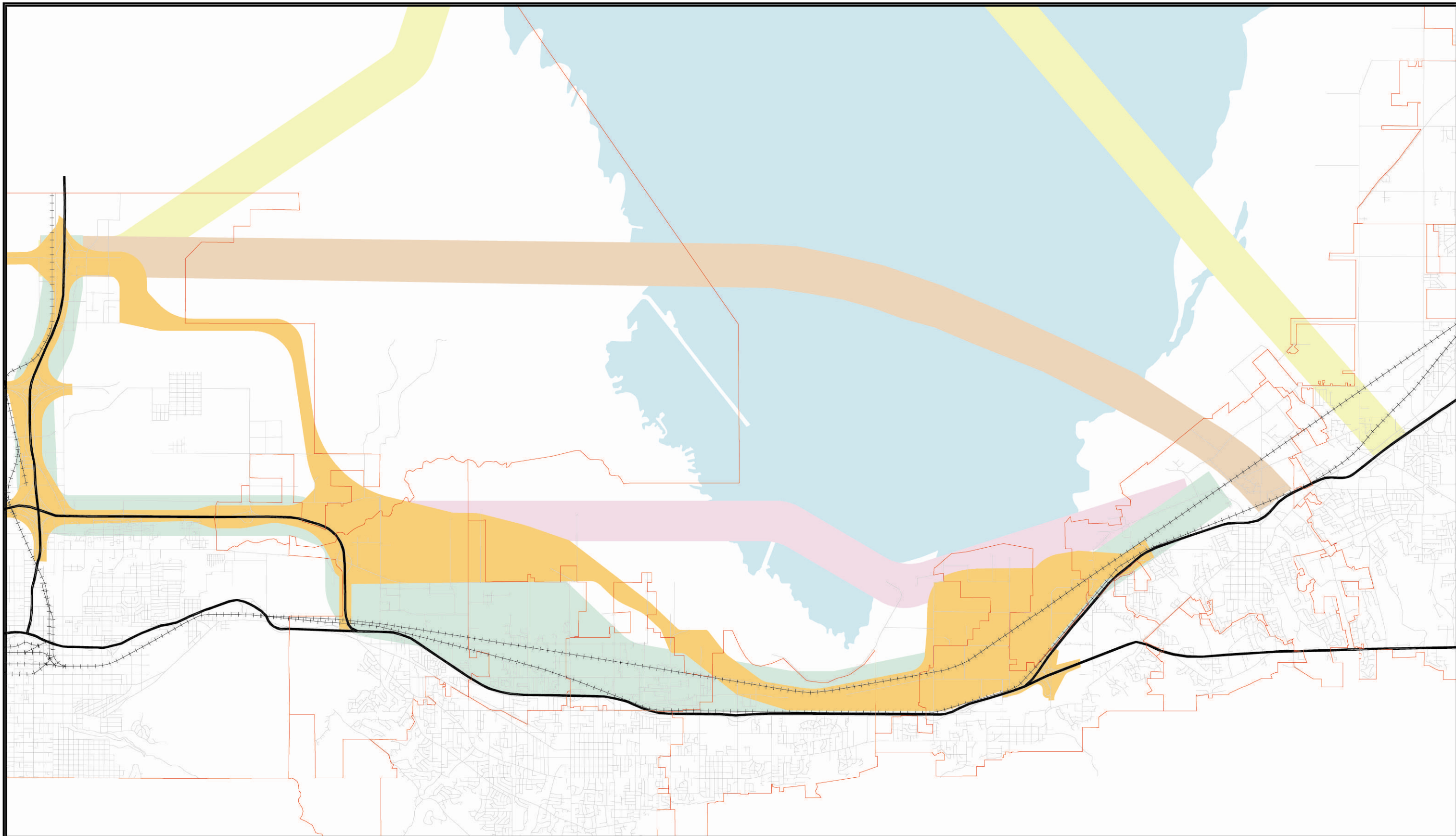
Agencies do not normally develop concept alignments with this level of detail to evaluate regional corridors at the planning stage. However, because of public interest, the evaluation in this section employs a higher level of detail for the D&RG corridor than what was developed for the other rejected regional corridors.

## 2.2 D&RG Alternatives Development and Assumptions

To evaluate the reasonableness or practicability of a highway within the D&RG corridor, UDOT developed five specific conceptual alignments within the corridor. These conceptual alignments are shown above in Figure 1-1, D&RG Conceptual Alignments. These alignments represent attempts to find a technically feasible, reasonable, and practicable alignment through the D&RG corridor that avoids or minimizes wetlands and development impacts.

To accommodate the D&RG conceptual alignments, the D&RG regional corridor depicted in the Final EIS needed to be expanded for the Supplemental EIS evaluation. Figure 1-2 above, Final EIS Regional Corridors, shows the original D&RG regional corridor. The corridor was expanded to the west through North Salt Lake, Woods Cross, and West Bountiful to meet the eastern boundary of the Great Salt Lake regional corridor. See Figure 2-1, Supplemental EIS Regional Corridors, for the expanded D&RG regional corridor.

During project scoping, the public was asked to list constraints and provide concepts for highway alignment options in the D&RG regional corridor. Conceptual D&RG alignments were developed based in part on the comments received at the focus group meeting on April 28, 2003. For additional information see Attachment 1 (Section 4.0 and Appendix B).



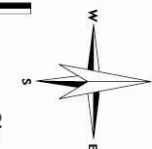
# LEGEND

- Antelope Island Alignment
- Trans-Bay Alignment
- Farmington Bay Alignment
- Great Salt Lake Alignment
- Railroad Alignment
- Jurisdiction Boundary
- Secondary Road
- Major Road
- Rail

Source: Utah AGRC - 1997, HDR - 1999 File: \projects\utah\westdavis\aml\b-chap2maps-re.aml Plotted: 29 Oct 03

0 1 2 3 4  
Kilometers

0 0.5 1 1.5 2  
Miles



**UPOT**  
GOING THE EXTRA MILE

**HDR**  
HDR Engineering, Inc.

Figure 2-1.  
Supplemental EIS Regional Corridors.

### 2.2.1 Southern Terminus Location

If a D&RG alignment were to follow a route straight down the D&RG railroad right-of-way, it would tie into I-215 at the I-15 interchange near where the D&RG right-of-way crosses I-215. UDOT found that an interchange where the D&RG tracks meet I-215 would be impracticable and unreasonable. This option was eliminated from further consideration because of its impacts, poor functionality, and physical constraints, and because an interchange at this location would not meet the purpose of and need for the project. More specifically, the interchange was eliminated for the following reasons:

- An interchange at this location would not meet the project's purpose of providing an alternate route through the North Corridor.
- A three-level bridging system would be needed to accommodate all the highway-to-highway movements. Because the bridge would need to pass over active Union Pacific and D&RG rail traffic, the bridge would need to be taller than one that passes over highway traffic only. For these reasons, an interchange at this location would be an extremely expensive solution and would require a considerable amount of physical space.
- Placing the interchange at this location would require cutting the mountainside to provide additional room to accommodate all the necessary traffic movements, which would be to and from I-15, I-215, and the Legacy Parkway.
- Directly north and west of the existing interchange is Hatch Park, which is a publicly owned recreation facility and is therefore a protected Section 4(f) property. This 4(f) property limits the area available for an interchange, and avoiding the property would be infeasible.
- Two oil refineries are located north and west of the existing I-15/I-215 interchange, and these refineries would need to be relocated. The estimated cost of relocating an oil refinery is about \$500 million.<sup>5</sup> The locations of these refineries put both physical and financial constraints on an interchange at this location.
- The costs required to maintain existing traffic flow during I-15 reconstruction are anticipated to be extraordinarily high when considering both construction costs and commuter delays. See the *Legacy Parkway Technical Memorandum: Sequencing of the North*

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<sup>5</sup> The estimated cost was from the *Marshall and Swift Valuation* 2003. This is a nationwide, industry standard handbook used by the UDOT right-of-way division to determine estimates for affecting certain types of businesses.

*Corridor Shared Solution* (HDR 2004). A benefit of the Legacy Parkway with an interchange farther west is that it would provide an alternate route while I-15 is being reconstructed.

### 2.2.2 Conceptual Alignment Criteria

As mentioned above, because the south interchange for a D&RG alignment could not be located where the D&RG tracks actually pass under I-215, the D&RG conceptual alignments must use the same southern terminus with I-215 as the Legacy Parkway Final EIS alternatives. From the southern interchange, UDOT explored alignments that cut to the west toward the D&RG right-of-way at varying distances north of Center Street.

The following criteria and methodology were used to develop D&RG conceptual alignments:

- Avoid properties that are eligible for the National Register of Historic Places (NRHP). The existing D&RG railroad corridor is eligible for the NRHP. Due to this fact, the D&RG alignments cannot lie within the D&RG right-of-way but must be placed adjacent to the right-of-way (except at rail crossings, where the alignments could lie within the right-of-way). The D&RG is also protected as a Section 4(f) property due to its eligibility as an NRHP historic resource.
- Avoid the most densely developed residential and commercial areas to ensure that the impacts on existing development within the corridor are not overstated.
- Avoid direct impacts that would require relocating an oil refinery. UDOT assumed that the impacts from taking an oil refinery would make the alignment unreasonable and impracticable because of the high cost of relocation and because the site would likely require extensive cleanup of hazardous materials.
- Avoid properties that would likely be subject to Section 4(f) of the U.S. Department of Transportation Act of 1966,<sup>6</sup> such as the Lakeside Golf Course (also called the West Bountiful golf course), which is a publicly owned recreation facility. This facility can be seen below in Figure 2-2, D&RG Existing Development. As shown in the figure, D&RG conceptual alignments DRG1 and DRG2 traverse the farthest south before cutting west to link back up with I-215. These alignments avoid

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<sup>6</sup> Section 4(f) of the U.S. Department of Transportation Act of 1966 requires the selection of an alternative that avoids designated public parks, recreation areas, wildlife refuges, and historic sites if a prudent and feasible alternative exists.

all identified parks (Hatch, Hogan Memorial, Clover Dale, Mills, and West Bountiful City) by going around them on the south side. D&RG alignments DRG3, DRG4, and DRG5 traverse east of the Lakeside Golf Course. Any alignments that would traverse northeast on the north side of Lakeside Golf Course would essentially be located in the Great Salt Lake regional corridor (Alternative E). See Section 2.3, Description of D&RG Conceptual Alignments, for a description of these alignments.

- Determine the right-of-way width for the conceptual alignments. The standard right-of-way width for the D&RG conceptual alignments is 95 m (312 ft). A right-of-way width of 80 m (264 ft) is used to reduce impacts in areas with wetlands or existing development. Therefore, the right-of-way width varies between 95 and 80 m (312 and 264 ft). Within the right-of-way, the highway “footprint” could also vary depending on the height of the roadway embankment and location of the trail. This varying width is referred to as the “variable footprint.” UDOT used the variable footprint to determine impacts of the alternative alignments to wetlands and existing development. For more information, see the *Legacy Parkway Technical Memorandum: Right-of-Way Issues* (HDR 2004).
- Follow the Alternative E alignment from about Parrish Lane north to the northern project terminus. Through this portion of the study area, a relatively narrow strip of land between Farmington Bay and the existing developments on the foothills of the Wasatch Mountains is the only land corridor available for a highway alignment west of I-15. In this area, the Great Salt Lake and Railroad regional corridors overlap and the previous environmental analysis in the Final EIS found that the Alternative E alignment was the least environmentally damaging practicable alternative.
- Avoid active rail lines. The rail lines considered in the Final EIS and Supplemental EIS include those that are actively being used. The D&RG rail line is still active from the southern end of the North Corridor to 400 North in West Bountiful and provides a freight transportation link to the petroleum refineries in North Salt Lake, Woods Cross, and West Bountiful. UDOT assumed that taking this active rail line would require relocating it to continue to serve these industrial users. Therefore, in active areas, the roadway was located alongside the rail right-of-way to avoid relocating an active rail corridor. The rail right-of-way through this area averages only 18.3 to 30.5 m (60 to 100 ft) wide. If an alignment were to use the railroad right-of-way, UDOT would still need to purchase

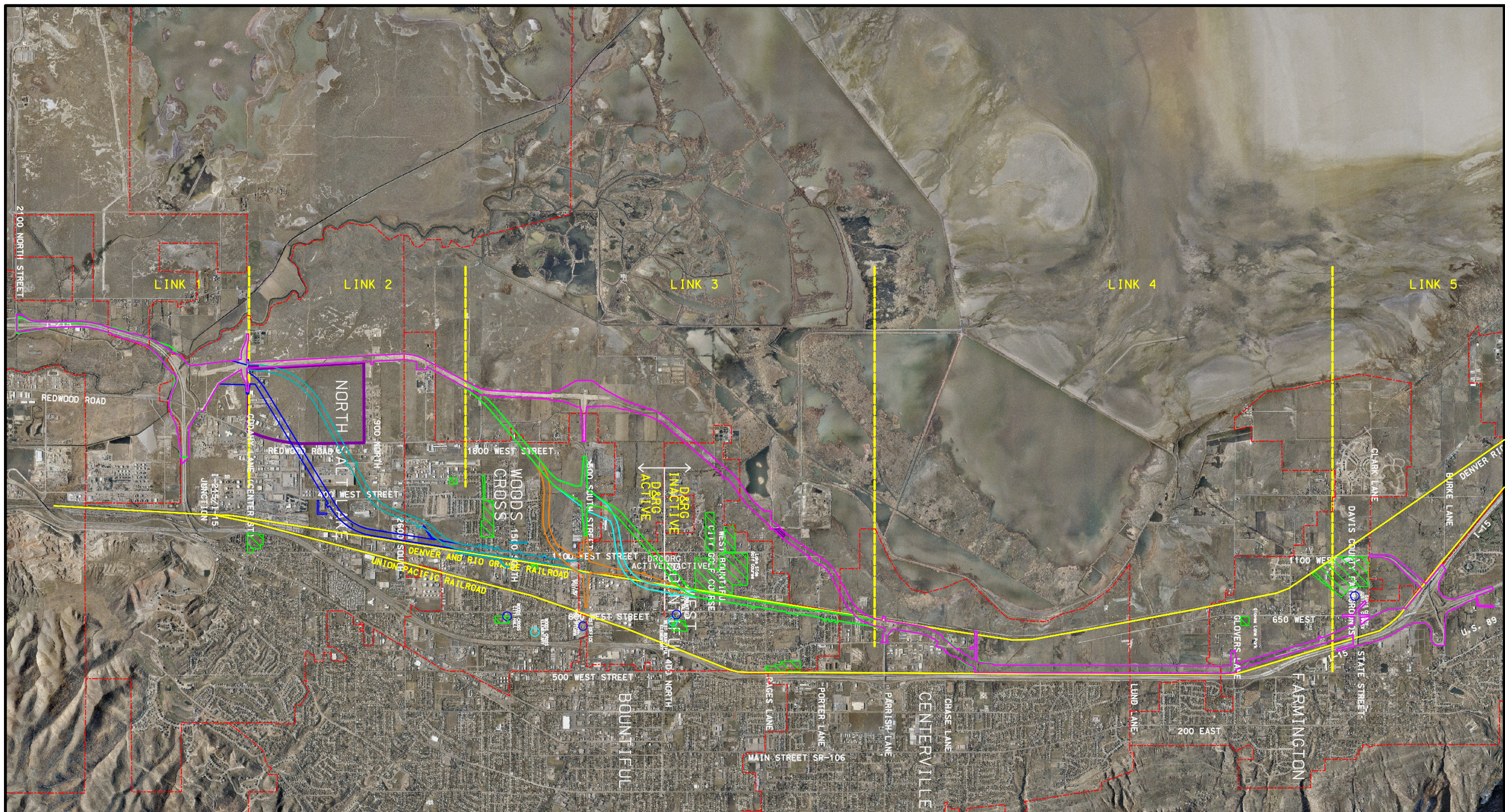
an additional 48.8 to 76.8 m (160 to 252 ft) of right-of-way to accommodate a roadway within the rail corridor.

### **2.2.3 Northern Terminus Location**

The Final EIS examined four locations for a northern terminus. The locations and rationale behind the selection can be found on page 2-24 of the Final EIS.

Because the D&RG conceptual alignments are the same as Alternative E in this area, the D&RG conceptual alignments would also use the same northern terminus as the Final EIS Preferred Alternative. This terminus would allow a system-to-system connection between I-15, US 89, and the proposed alternative at the north end.





# LEGEND

DRG1	JURISDICTIONAL BOUNDARIES
DRG2	GOVERNMENT FACILITY
DRG3	PUBLIC FACILITY
DRG4	PARK
DRG5	GOLF COURSE
ALT E	FOXBORO
LINK DESIGNATION	
RAILROAD	

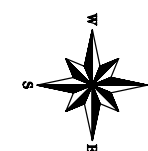
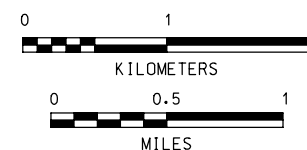


Figure 2-2

D&RG EXISTING DEVELOPMENT

Legacy Parkway Supplemental EIS



## 2.3 Description of D&RG Conceptual Alignments

All five D&RG conceptual alignments north of Parrish Lane, through Centerville and Farmington (Parrish Lane to I-15/US 89), would follow the same alignment as the Supplemental EIS Alternative E. Given the locations of the northern and southern termini and the nature of the corridor, many parts of the five D&RG conceptual alignments follow the same route as Alternative E. To help identify where the impacts occur and the differences between the conceptual alignments, the study area was divided into five sub-areas, or “links.”

As described in Section 2.4, Formulation of Alternatives to Be Evaluated in Detail, of the Final EIS, a similar process was conducted to establish the proposed alternative alignments for analysis in the Legacy Parkway EIS. Information for the various alignments is presented within each link to allow a more detailed comparison. See Figure 1-1, D&RG Conceptual Alignments, and Figure 2-2, D&RG Existing Development.

- **Link 1** encompasses the southern interchange north through and including Center Street. All five of the D&RG conceptual alignments and Alternative E are essentially identical in Link 1.
- **Link 2** covers North Salt Lake and about half of Woods Cross. The boundary separating Link 2 from Link 3 was specifically drawn to be located where conceptual alignments DRG3, DRG4, and DRG5 diverge from the Alternative E alignment.
- **Link 3** extends from the north end of Link 2 to just south of Parrish Lane in Centerville. It was specifically drawn to highlight the segments where all the D&RG conceptual alignments differ from the Alternative E alignment.
- **Link 4** goes through Centerville to just south of State Street in Farmington. All the D&RG conceptual alignments are identical in Link 4.
- **Link 5** encompasses the northern interchange. All the D&RG conceptual alignments are identical in Link 5.

In the northern part of the study area (Links 4 and 5), the Great Salt Lake and D&RG regional corridors are the same. See Figure 1-2, Final EIS Regional Corridors. Farmington Bay and the Great Salt Lake are located just west of Alternative E. As mentioned in Section 2.2.2, Conceptual Alignment Criteria, most of this area is covered with wetlands, and the previous environmental analysis in the Final EIS found that the Preferred Alternative (Alternative E for

the Supplemental EIS) alignment was the least environmentally damaging practicable alternative within the overlapping Great Salt Lake and D&RG regional corridors.

Except at rail crossings, none of the D&RG conceptual alignments would actually lie within the D&RG right-of-way. South of 400 North, the rail line is active and the conceptual alignments parallel the tracks on the west side. North of 400 North, the conceptual alignments cross the tracks to avoid the Lakeside Golf Course, a Section 4(f) property. DRG1 and DRG2 follow the tracks for the longest length—from North Salt Lake to Parrish Lane in Centerville. DRG3, DRG4, and DRG5 follow the tracks through West Bountiful and Centerville only.

The five D&RG conceptual alignments and the locations where they would vary from Alternative E are described below, from south to north.

- **DRG1.** From the southern interchange at I-215, DRG1 runs north past Center Street and northeast to cross Redwood Road at 200 North. This alignment continues northeast to the D&RG tracks, where it runs along the west side of the D&RG tracks to avoid refineries and the active portions of the D&RG rail line that extend north to 400 North. At 400 North, it crosses the tracks to avoid the Lakeside Golf Course—a Section 4(f) property—and runs parallel to the east side of the tracks where it meets Alternative E and follows the same alignment through the remaining portion of the study area. DRG1 follows the D&RG right-of-way for the greatest distance.
- **DRG2.** From the southern interchange at I-215, DRG2 runs north past Center Street then northeast to cross Redwood Road between 200 North and 900 North (farther north than DRG1), continuing northeast until it intersects with 2600 North. At 2600 North, the alignment turns north and travels along the west side of the D&RG tracks. Like DRG1, this alignment runs on the west side of the D&RG tracks to 400 North, then crosses the tracks to avoid the Lakeside Golf Course and parallels the tracks on the east side where it meets Alternative E and follows the same alignment.
- **DRG3.** DRG3 follows Alternative E from the southern interchange at I-215 through North Salt Lake (Link 2) into Woods Cross. The alignment diverges from the Alternative E alignment just south of 1500 South in Woods Cross (Link 3) and runs east toward the D&RG rail line, then north toward an interchange at 500 South. This alignment follows along the west side of the D&RG tracks to 400 North before crossing the tracks on the east side to avoid the Lakeside Golf Course. This alignment then

turns north to parallel the D&RG tracks on the east side where it meets Alternative E and follows the same alignment.

- **DRG4.** DRG4 is identical to DRG3 through Link 2, where it crosses into Woods Cross. The alignment diverges from Alternative E just south of 1500 South in Woods Cross and continues northeast to an interchange at 500 South (on a more westerly alignment than DRG3), before turning to head east to intersect the D&RG tracks. This alignment then turns north to parallel the D&RG tracks on the east side where it meets Alternative E and follows the same alignment.
- **DRG5.** DRG5 follows the same alignment as DRG4 to the 500 South interchange. Unlike DRG4, this alignment continues northeast to intersect the D&RG tracks north of 400 North. This alignment then turns north just past where the D&RG tracks become inactive, but still avoids impacting the Lakeside Golf Course. The alignment parallels the D&RG tracks on the east where it meets Alternative E and follows the same alignment.